



Dubai Airports  
Connecting the World

# THE AIRPORT OF THE FUTURE

Dubai Airports 2050



The vision and innovation that have inspired the development of one of the great cities on the planet are being applied in full force to the continued evolution of its fast-growing and dynamic aviation sector. Always looking forward, Dubai will soon be home to a new breed of airport.

# POWER OF VISION

When Dubai International (DXB) was officially inaugurated on September 30, 1960, it comprised an 1,800-metre airstrip of compacted sand, an apron, a fire station and a small terminal building.

Fifty-four years later DXB has evolved from a small airstrip mainly serving as a refueling stop for a few airlines into an international gateway for more than 125 airlines that is ranked among the world's leading hubs for international passenger and freight traffic. Passenger numbers surpassed 66.4 million in 2013 and will exceed 100 million by the end of the decade.

This tremendous progress is thanks to the vision of the late Sheikh Rashid Bin Saeed Al Maktoum, who understood the amazing potential of aviation and took the initiative to build the airport and promote an open skies policy. It is a vision that has been carried forward strongly by HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, and has effectively positioned Dubai at the heart of global aviation.

## UNRIVALLED GROWTH

Throughout its proud aviation history, Dubai has exceeded expectations delivering double-digit traffic growth and world-class service. As the first point of entry for more than 95% of all visitors to Dubai, Dubai International and the tens of thousands of dedicated employees who work there, have played a pivotal role in making a positive and lasting impression on the millions of visitors who have passed through its doors.

In many ways, the proud history and tremendous growth of DXB mirrors the development of Dubai. It is further proof that through vision, innovation, collaboration and hard work, great things can be achieved.

# AVIATION MODEL

Since the outset Dubai has understood the tremendous value of aviation as a driver of social and economic development. The emergence of Dubai as a leading global aviation centre is the result of a carefully constructed and well executed model that effectively harnesses the emirate's geo-centric location by providing a liberal regulatory regime which fosters competition, business-friendly environment, a customer-centric focus that provides value for money, and close coordination and collaboration within the sector.

As a result, Dubai's aviation sector has seen tremendous growth. Since the opening of DXB in 1960, we have seen average annual growth of over 15%. Over the past decade passenger numbers have almost quadrupled from 18.1 million in 2003 to 66 million in 2013. Throughout its history, airport capacity has always been provided in a timely fashion and to a very high standard. That includes the flawless openings of Terminal 3 in 2008 and Concourse A, the world's first purpose-built A380 facility, in 2013. DXB is set to be the busiest airport in the world for international passenger traffic.

Each member of the Dubai aviation sector has contributed to the success. Launched in 1985, Emirates airline has become largest international airline in the world in terms of revenue passenger kilometres. Dubai Duty Free has become one of the biggest single airport retail operations in the world with sales of \$1.8 billion in 2013.

And flydubai has established itself as an emerging Dubai-based operator.

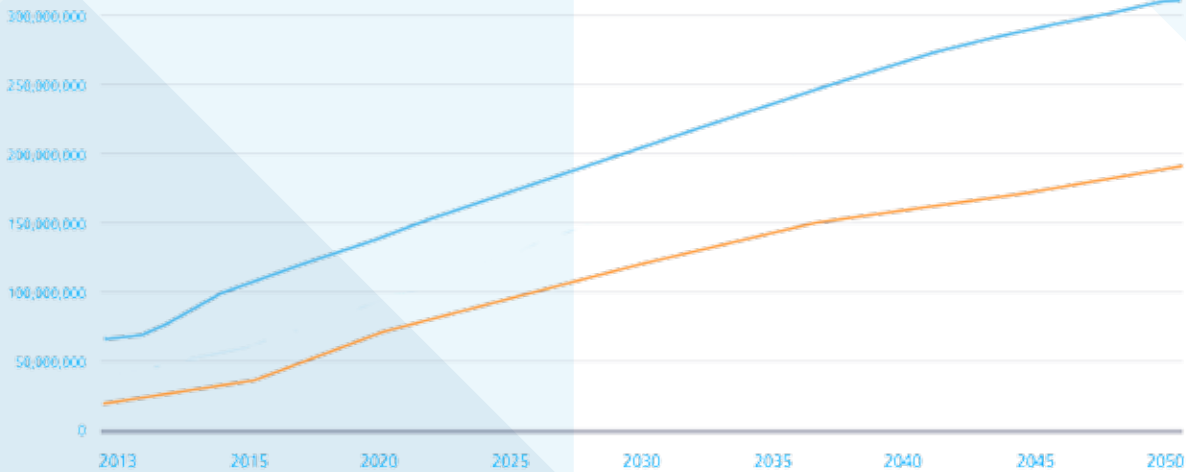
As anticipated, the economic and social contributions of the sector have been considerable. A 2011 study conducted by Oxford Economics revealed that aviation supports 250,000 jobs, 19% of Dubai's employment and \$22 billion or 28% of Dubai's GDP. By 2020, that will increase to 32% of Dubai's GDP (\$45.4 billion), 22% of employment or 372,900 jobs.

Dubai's considerable assets, including political and economic stability, proximity to the massive emerging economies of China and India, an extensive foreign trade network, state-of-the-art telecommunication, top flight infrastructure and its emergence as a world class tourism and business destination, continue to spur double-digit growth.



# The Story So Far

## PASSENGER TRAFFIC FORECAST OVERVIEW



- old forecast - revised forecast



### NOTE

The traffic forecast update was produced by Dubai Airports in December 2013 based on input from stakeholders including Emirates and flydubai for the unconstrained growth of Dubai's total passenger traffic.



### PLANNING PRINCIPLE

Al Maktoum International at Dubai World Central (DWC) will provide the capacity to meet projected traffic demand up to 2050.



### PLANNING PRINCIPLE

A new airport in DWC designed to accommodate 120 million passengers will open in the early part of the next decade.



### PLANNING PRINCIPLE

Ultimate capacity will be built based on projected demand in 2050.

# STRATEGIC PLAN 2020

By 2020, thanks to longer range aircraft that amplify the advantage of Dubai's geo-centric location along with a fast-growing route network, traffic demand for both airports is expected to reach over 120 million passengers and more than five million tonnes of air freight.

## The Future

Dubai Airports' Strategic Plan 2020, launched in 2011, is designed to provide capacity to accommodate that growth with the primary focus directed to expanding Dubai International (DXB) as the most expedient and efficient way forward. The programme includes the construction of Concourse A (completed in January 2013), the doubling of capacity at Terminal 2 (by the end of 2014), the construction of Concourse D (2015), Concourse C upgrade (after completion of Concourse D) to accommodate Emirates as the sole user, combined with associated stand upgrades, enhancements to airfield and air traffic control capacity, as well as the upgrading of existing facilities to improve the passenger experience.

Passenger facilities will also continue to be expanded at Dubai World Central (DWC) to accommodate traffic that cannot be accommodated at DXB.

All of these measures will boost DXB's maximum capacity up to 100 million passengers by the end of the decade. However, as growth will continue at a rapid pace well beyond 2020, additional infrastructure will be required to accommodate the additional demand.

### ANNUAL PASSENGERS Shows historic/projected demand to 2020



\*estimated figures for total passenger traffic for both DXB and DWC

The Future

# BEYOND 2020

Growth projections beyond 2020 clearly point to the need for the rapid expansion of Dubai's second airport, Al Maktoum International at Dubai World Central, particularly in light of recent aircraft orders by home carriers Emirates airline and flydubai.

In November 2013 at the Dubai Airshow, Emirates airline placed a record-breaking order for 150 Boeing 777X, comprising 35 Boeing 777-8Xs and 115 Boeing 777-9Xs, plus 50 purchase rights and an additional 50 Airbus A380 aircraft. Flydubai announced its commitment for an order for up to 111 aircraft from Boeing, including up to 100 Boeing 737 MAX and up to 11 Next-Generation Boeing 737-800s. Although both orders include some replacement aircraft, the ongoing expansion in flights, passenger numbers and route network is set to intensify as a result.





## The Future

### EMIRATES AIRLINE EK fleet

Aircraft	In service (200 pasenger, 12 freighter aircraft)	On order (worth US\$164 billion)
<b>AIRBUS</b>		
A330-200 (RR)	21	-
A340-300 (CFM)	4	-
A340-500 (RR)	9	-
A380-800 (GP)	50	90
<b>BOEING</b>		
777-8Xs	-	35
777-9Xs	-	115
777-200 (ER)	9	-
777-200LR (GE)	10	-
777-300 (RR)	12	-
777-300ER (GE)	96	56
777-F- (GE)	11	2
747-400ER F (GE)	2	-
<b>TOTAL</b>	<b>224</b>	<b>298*</b>

\* Not including options

\* Updated July 2014

Source: Emirates

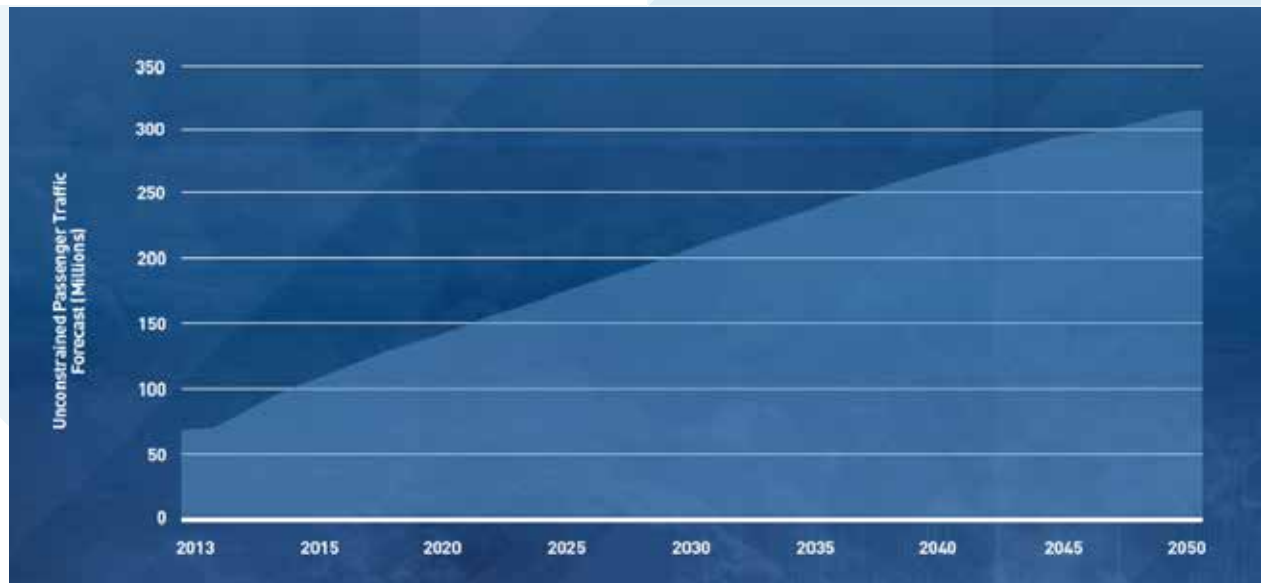
## The Future

Given capacity restrictions at Dubai International (DXB), the requirement for rapid expansion of Dubai World Central (DWC) is clear. Originally opened for cargo in June 2010 and in October 2013 for passenger operations, DWC currently has capacity for five to seven million passengers and up to 600,000 tonnes of freight.

Long-term forecasts necessitate ongoing investment in aircraft and airport infrastructure, even beyond the billions currently earmarked by Emirates airline and flydubai for fleet and the \$7.8 billion being invested in Dubai Airports' current strategic plan SP2020.

Dubai Airports forecasts that passenger demand could exceed 190 million passengers a year by 2030. This is expected to climb to over 260 million by 2040 and as high as 309 million by 2050. To continue the growth of the sector and, accordingly, the economic and social contributions to Dubai and the UAE, DWC must be developed into the world's largest and, importantly, most advanced and customer-centric airport.

### Traffic predictions to 2050 for DXB and DWC combined



\* Above is the combined demand forecast for both Dubai International and Al Maktoum International at Dubai World Central

# STRATEGIC PLAN 2050

As a result, over the past year Dubai's aviation sector board has been formulating a plan to accommodate the anticipated demand with top-flight infrastructure and a completely new approach to airport design which will enable the continued escalation of traffic whilst reaching new heights for connectivity and passenger service.

During its formulation, the strategy's objectives were to ensure a common approach in the development of DWC, consider a full range of conceptual options, and promote passenger experience and innovation into the planning process early on to ensure that the recommendations are "future-proofed". Additionally, the planning process has provided an opportunity for the sector to do what Dubai does best – innovate and change the existing paradigm to provide a world-class experience.

# SHIFTING THE PARADIGM

Dubai Airports, along with the emirate's entire aviation sector, recognises that the current design parameters, processes and technology used in airports today cannot be applied to a larger scale airport without efficiency and service quality being negatively impacted. Legacy approaches and systems must be either reworked or discarded completely to evolve and improve the passenger experience.



## Case For Change



Over the years, the industry has taken a number of successful incremental steps to improve the ground-based part of the journey – such as internet-based distribution, e-ticketing and home-printed boarding passes to name a few. But the airport experience is often the most inconvenient part of air travel.

Cumbersome and time-consuming airport processes continue to frustrate the traveller. Security is intrusive and inefficient and uses the same basic technology from the 1970s. Similarly the check-in and transfer processes are wasteful and have yet to take full advantage of existing technologies.

At the root of this malaise is the fact that all of these activities take place in separate, vertical silos, whilst passengers bump roughly across the joins between them. This is a microcosm of the industry's current challenge. To delight customers, an integrated, customer-centric approach is now urgently needed to ensure passengers continue to return to Dubai.

Airports must invest heavily in innovative, customer-oriented technology and processes to eliminate queues and increase retail opportunities by driving out cumbersome, outdated process and optimising dwell time. Similarly airport design must be scalable and modular to quickly and cost-effectively adapt and respond to changing business environments and fluctuations in medium and long-term traffic forecasts. Alternative sources of energy must be built in and optimised to promote sustainability.

Both the model and the approach must change radically and Dubai provides the collaborative model and business environment along with a 140 square kilometre greenfield site to effect that breakthrough shift in thinking and approach.

# THE AIRPORT OF THE FUTURE

Strategic Plan 2050 addresses the requirement for timely and flexible capacity expansion to accommodate the high growth rates and passenger and cargo traffic volumes projected in the years and decades ahead.

## The Airport of The Future



Most importantly, the design ensures the proper balance between scale and intimacy. Although passengers may be passing through the world's largest airport which offers unmatched connectivity and choice of destination, they won't sense the scale with minimal walking distances and queues and a warm and welcoming environment. While developing the new design of DWC, the clear goal is to design an airport environment that is simple, efficient, intuitive and customer-centric. One where despite the scale and size, connection times and average walking distances are kept to a minimum. One where cutting edge passenger-enabled technologies are embedded within optimised airport design and simplified processes.

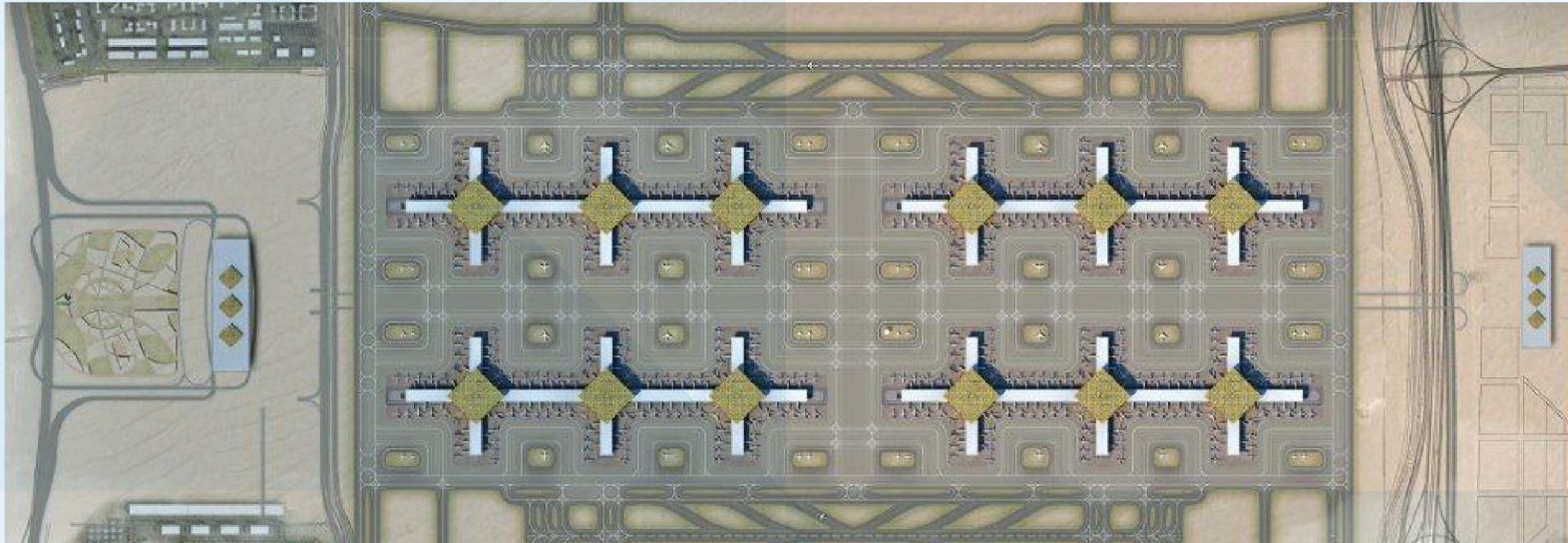
One in which departing passengers are separated from their baggage as early as possible including off-airport locations, and arriving passengers are reunited with their baggage as conveniently as possible. One where connections are made quickly and easily. At the same time the design must be cost effective, use sustainable energy and materials and be scalable to deliver incremental capacity in line with growth via a modular approach. And it must be fully integrated with road, rail and metro.

# THE MASTERPLAN LAYOUTS

The solution takes the form of a modular design consisting of adjacent triple plus-shaped concourses which optimise connectivity and passenger convenience. During the first phase of the development, to be delivered around 2025, two triple plus concourses will be constructed. Each of these will comprise 100 contact stands, the majority of which will be A380 capable (Code F).



## The Airport of The Future



Each of these concourses, comprising three nodes, will be connected by an automated people mover/train to a multimodal ground transportation facility, located at the west end of the airport. The train will welcome guests from various modes of transportation and transfer them in close proximity to their gate. The design also facilitates highly efficient minimum connection times for transit passengers.

The build programme is underway and following the completion of phase one around 2025, the airport will be expanded incrementally, thanks to its modular design, to deliver capacity in timely response to increases in demand. Three runways will serve the first two triple plus concourses and the final master plan iteration provisions for up to four concourses and five runways.

# PASSENGER EXPERIENCE

Rather than replicate today's approach, Dubai Airports, in partnership with its key customers and stakeholders, has put the customer's experience at the heart of the design of facilities, processes and services.

In order to achieve a consistently customer-centric airport experience, 'community processes' must be developed to ensure airlines, airport stakeholders, transport providers, hotel and hospitality partners and vendors have common systems and services that directly benefit the passenger. By implementing this approach, each customer touchpoint will be efficient, convenient and familiar, eliminating the confusion and anxiety often experienced today.

## The Airport of The Future



### GETTING TO AND FROM THE AIRPORT

In designing airport access, the goal is to bring the airport to the passenger. This will be achieved by working with rail, surface transport providers and the hospitality industry to facilitate screening, check-in and baggage drop to the extent possible before the passenger arrives at the airport. For those that don't or can't do so prior, a convenient kerbside and drive-through baggage drop will be provided with a provision for dedicated chauffeur, first and business class tiers as well as dedicated lanes for group and hotel coaches.

Plans for rapid rail transit from the city and surrounding area to the airport are under preparation with Dubai's Roads and Transport Authority. The airport will provide for an efficient and convenient interface with all modes of transport and enable a fast and seamless connection to the airport rapid rail system at the main terminal building located off the E311, one of three major road arteries that run across Dubai. From there, the airport rail network will transport all originating and connecting passengers on dedicated arrivals and departures network loops.

# The Airport of The Future

## DEPARTURES

Departing passengers will check in and then pass through security before boarding comfortable, high-speed airport trains that will position them at their selected concourse node point from where they will have the opportunity to experience extensive retail, food and beverage offerings. Walking distances from the node point will be minimised due to optimally positioned train interfaces in relation to departure gates. Departure gates will feature self-boarding capability using biometrics.

There will be convenient and dedicated access to airport lounges for each class of passenger using the same approach as is seen today in Concourse A which facilitates multi-level dedicated boarding directly from lounges. Airport trains will similarly offer first, business and economy class options.

Airport architecture will provide for clear, unobstructed views of gate areas, as well as intuitive wayfinding, comfortable seating, attractive retail and F&B offerings, constant Wi-Fi connectivity and interactive personalised information will be available throughout. Dedicated facilities for connecting passengers will feature similar conveniences along with minimal walking distances to onward flights.

## ARRIVALS

Arriving passengers will experience a warm, welcoming and distinctly Dubai ambiance from the moment they exit the aircraft. Upon deplaning they will take a short walk to a node point where dedicated trains will quickly take them to the main terminal building.

The immigration process will centre on fast, efficient smart gates using biometrics. A fast-track option will be available to arrival passengers without baggage or with baggage that has been directed to another destination.

Baggage will arrive at the customer's place of choice – at home, hotel or airport – at the same time as the passenger or exactly when they want it delivered. If traditional baggage pick-up upon airport exit is preferred, the baggage arrivals hall will offer a clear line of sight from carousel to exit and no changes to floor level. As is the case for departures, arriving passengers will also have swift and convenient access to all forms of public and private transport.



## The Airport of The Future



### CONNECTIONS

The majority of our passengers visiting Dubai Airports, approximately 52%, are connecting to onward destinations, and that percentage is set to grow. The challenge to connect these passengers efficiently and comfortably has been addressed in the base design with dedicated connecting trains linking the concourses.

The counter-rotating rail lines will ensure the shortest and quickest connections possible between concourses. With walking distance to departure gates minimised once a connecting passenger exits the train. Simple and intuitive architecture and wayfinding will further assist the seamless delivery of passengers to their gate destinations. All connecting passengers will get full access to the airside retail offerings.

# CONCLUSION

The vision and innovation that have inspired the development of one of the great cities on the planet are being applied in full force to the continued evolution of its fast-growing and dynamic aviation sector. Always looking forward, Dubai will soon be home to a new breed of airport. One that shatters pre-conceived notions and sets new standards for connectivity, efficiency and customer service.



2015 will mark  
the beginning of a  
new era in aviation,  
with Dubai at the  
forefront.



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